



WELD 211 Welding Related Metallurgy section name section credit hours Credits
Syllabus

Course Information

Meeting times and location: section meeting_times section location

Catalog description: Familiarizes students with methods of metal production, metal properties, ASME weld testing, heat treatment of metals, and special welding applications.

Prerequisites: course prereqs

Terms offered: Fall and Summer

Section-specific Course Description:

Course Level Objectives

GENERAL LEARNING OBJECTIVES

1. Understand stress build-up problems during the welding and fabrication process.
2. Understand the basic characteristics of carbon steel and alloy steel along with how heat affects them.

SPECIFIC LEARNING OUTCOMES

Upon successful completion of the course, the student will be able to...

1. Utilize metallurgy to control distortion and warp age during welding.
2. Define hardness.
3. Use charts to break down properties of steel and alloy steels.
4. Define the difference between small and large grain crystal structure.

5. Apply heat treating and quenching techniques.
6. Utilize the annealing and normalizing processes on steel.
7. Surface hardened mild steel.
8. Select proper electrodes for special welding applications.

Required Texts and/or Materials

METALLURGY FUNDAMENTALS

Ferrous and Nonferrous

978-1-60525-079-3

Daniel A. Brandt, J.C. Warner

The Goodheart-Willcox Company, Inc.

2009

Fifth

Required Technology and Software

- Canvas
- Chrome, Safari, or Firefox

Technical Support

Technical support is available through the San Juan College Help Desk 24/7/365. The help desk can be reached at 505-566-3266 or by creating a ticket at [San Juan College Help Desk](#).

For tickets and password reset: [San Juan College Help Desk](#)

For Canvas support information: [Canvas Support](#)

Accessibility/Privacy Policies for all Technology Tools Used

Scroll to the middle of the linked page to view

[Accessibility/Privacy Policies for all Technology Tools Used](#)

Course Requirements

Students will do the following activities:

1. Test Your Knowledge Questions at the end of each chapter
2. Chapter Quizzes
3. Metal PowerPoint Presentation
4. Written Final

COVID Safe Practices for Being on Campus

COVID Safe Practices for Being on Campus

What to do if you have COVID-19 symptoms, are exposed or test positive:

- Do NOT come to campus, but continue to monitor your symptoms and stay home if you test positive for COVID-19 or when you are not feeling well.
- Contact your instructor.

There is no longer a requirement to complete the intake form if you test positive for COVID-19, experience symptoms, or come in contact with a confirmed positive COVID-19 case.

San Juan College continues to follow the NM Department of Health guidelines with regard to COVID-19. These guidelines can be reviewed by visiting their website at: <https://cv.nmhealth.org/>.

Additional SJC COVID-19 information and resources can be found on the [Coronavirus](#) webpage.

Student Support

Student Services and Support

At San Juan College, we support your academic success and overall health. We know that students often experience a range of stressors that can impact learning and well-being. If you, or someone you know is experiencing mental health concerns, or could benefit from effective academic strategies, there are free and confidential resources available to enrolled students through the Counseling Center. To learn more, visit the [Counseling Center website](#) or call 505-566-3404.

The Student Support webpage provides information on counseling, tutoring, technical support, and many other support services available to San Juan College students.

[Student Support](#)

Academic Support

Academic Support webpage provides information on academic advising, the library, Testing Center, and the honors program.

[Academic Support](#)

Participation and Attendance Policy

1. Participation: All students are expected to come to class prepared, with all assignments complete, and willing to contribute to class discussions. Student's questions are welcomed at all times. During class time we will review, discuss new materials, and go through a step-by-step analysis of welding problems.
2. Absences: If a class must be missed, it is the student's responsibility to find out any information missed during that class period. Examples would be missed assignments and announced changes in assignment's due dates and/or test dates. You will have an attendance grade and it is worth 25% of your overall grade.
3. You are expected to attend EVERY class session and be responsible for every class assignment given. Welding is a building process -- that is, concepts are built on skills learned earlier. Therefore, there is a strong correlation between attendance and student success; it is important to attend all classes. When attendance is taken you are expected to be present. If you are not present you will receive an absence. Make-up work: Not allowed without instructor's approval!

Inclement Weather Information

Students will receive notification of class delays and cancellations due to inclement weather via the SJC SunsAlert and SJC student email. Face-to-face classes will not meet in person; however, students are advised to check with instructors about alternative meeting options, as some may choose to meet via zoom. Hybrid classes will meet as scheduled via zoom. For questions regarding your class delay or cancellation, please contact your instructor. If you have not already done so, [Sign up for SJC SunsAlert](#) to stay up to date on weather alerts.

Canvas Participation and Expectations

All grades will be posted in Canvas and it is the student's responsibility to check their grades and get with the instructor if there are any questions.

2. All Test Your Knowledge answers will be answered in Canvas under the Quizzes tab.

Instructor Response Times & Regular Interaction Expectations

I will answer emails and messages within 24 hours

Course Time Commitment

Besides the normal class time you should be spending 5-9 hours a week outside of class with homework and reading through the text.

Grading

Final grades are calculated based on the following...

A = 100% - 90%

B = 89% - 80%

C = 79% - 70%

D = 69% - 60%

F = 59% - Below

0 = No Work Turned In

Weighed Grades

Class Assignments = 25%

PowerPoint Presentation = 25%

Attendance = 25%

Final = 25%

ABSENCES

0 absence 100%

1 absence 80%

2 absences 60%

3 absences 40%

4 absences 20%

5 absences 0%

An absence is ANY EVENT causing the student to miss class.

When a student accumulates excessive absences he/she will not pass the class.

Tardies: 3 tardies equal 1 absence. A tardy is 1 to 10 minutes late. After that time, a student will be marked absent.

There are three excused absences: funeral of immediate family member, jury duty and military service. All other absences will be evaluated by the instructor on a case by case basis.

Key Dates to Remember

[Full Academic Calendar](#)

Course Schedule

All assignments and due dates are subject to change.

TEST YOUR KNOWLEDGE CHAPTER SEQUENCE AND DELETED QUESTIONS

CHAPTERS WILL BE COVERED IN THIS ORDER WITH THE DELETED QUESTIONS BESIDE EACH CHAPTER NUMBER.

CHAPTER ORDER DELETED QUESTIONS

CHAPTER #1 PRACTICAL APPLICATIONS OF METALLURGY NONE DELETED

CHAPTER #2 METALLURGY/CHEMICAL TERMINOLOGY 15-16-17

CHAPTER #5 WHAT IS STEEL 18-26-35-36-37-38

CHAPTER #4 MATERIAL PROPERTIES 11-19-20-21-22

CHAPTER #6 MANUFACTURE OF IRON AND STEEL 22

CHAPTER #3 HARDNESS 29-30-31-32

CHAPTER #7 CRYSTAL STRUCTURE NONE DELETED

CHAPTER #8 FAILURE AND DEFORMATION 14-15-16

CHAPTER #12 ANNEALING AND QUENCHING 13

CHAPTER #11 HEAT TREATING AND QUENCHING 12-13-14

CHAPTER #14 TEMPERING 16-17-18

CHAPTER #15 SURFACE HARDNING 18-19-20

CHAPTER #16 PROCESSING NONFERROUS METALS 8

CHAPTER #17 ALUMINUM AND ALUMINIUM ALLOYS 2

CHAPTER #18 COPPER, BRONZE, AND BRASS 3

CHAPTER #19 MAGNESIUM, ZINC, TIN, SPECIALITY METALS 11-14-18-21

College Policies

The following information also applies to your work in this class. If you have special needs for campus emergency situations, please inform me immediately.

1. Academic Accommodations - American with Disabilities Act (ADA)

If you believe you need academic accommodations due to physical or other disabilities, you are encouraged to contact Accessibility Services as soon as possible. The coordinator can work with you to determine eligibility and appropriate accommodations strategies. Please go to your MY SJC portal page, click on Accessibility Services, and complete all the steps.

You can also contact the college's Accessibility Services Coordinator at (505) 566-3271 or accessibilityservices@sanjuancollege.edu. More information is available on the website listed above.

2. The Family Educational Rights and Privacy Act (FERPA)

Refer to the catalog for information regarding [FERPA](#).

3. Academic Honesty Rules

San Juan College expects all students to adhere to the [Academic Honesty Rules](#) as posted online. These are the official guidelines for all classes at San Juan College.

4. Student Conduct Statement

College is preparation for professional opportunities, and professional conduct is expected in courses, including online classes, as well as any written communications, and interactions with members of the college community. As part of our learning community, students are expected to interact and communicate in a mature, respectful, thoughtful, and supportive manner. Students who demonstrate disrespectful, hostile, belittling, bullying or other disruptive behavior will be subject to potential consequences and possible dismissal from the college. The college will take appropriate action when students demonstrate threatening behavior (to others or self). Students should refer to the Code of Conduct in the Student Handbook for additional information.

5. Student Safety

Keeping students safe is a priority, and part of that is ensuring that we have the ability to communicate emergency messages to you. SJC SunsAlert is San Juan College's Emergency Notification System that will provide you with real-time information about campus closures, extreme weather, and other emergencies through your San Juan College email, text alerts, and phone calls. Should an emergency occur prior to activating your SJC SunsAlert, you will only receive messages through your San Juan College email. To receive a phone call and text alert, you must activate your SJC SunsAlert account and register your phone number. To activate your SJC SunsAlert account, you will need to download the Everbridge App in the App Store or Google Play. Once the app is downloaded follow these steps:

- Open the app
- Click on "Find an organization or subscription" button
- In the search box, either type in San Juan College or 87402
- Click on "SJC SunsAlert"

- Sign on using your SJC email and password
- Once you sign in, you will want to click on “Manage My Profile”
- Click on “edit”
- Include your preferred communication methods.
- Enter your cell phone number in the personal text msg field to ensure you receive text messages.
- Confirm all information (phone number & email) is correct and up to date.
- If you need help with the app, please call John Myers at 505-566-4224 or Kenny Hibner at 505-566-3050.

In the event of an emergency, an SJC SunsAlert message will be sent, and depending on the situation, you will be instructed to do one of the following:

- Evacuate the building
- Shelter in place (Campus doors are locked, and operations continue as normal. During this situation, no one other than law enforcement is allowed in or out of the campus.)
- Lockdown (Campus doors are locked. All operations cease, and you should take cover in your immediate area. No one other than law enforcement is allowed in or out of the campus.)

The Department of Public Safety (DPS) is available 24 hours per day. In an emergency, you can reach DPS staff by calling (505) 566-4444.

6. Non-Discrimination, Sexual Harassment, and Retaliation.

San Juan College does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, genetic, veteran’s status, or on the basis of any other category protected under federal, state and local laws. If you have experienced sexual harassment, sexual assault, or any other form of protected class discrimination, we encourage you to make a report. If you report to a faculty member, she/he/they are obligated by policy to share knowledge, notice, and/or reports of harassment, discrimination, and/or retaliation with the Title IX Coordinator. These disclosures include but are not limited to reports of sexual assault, dating/domestic violence, and stalking. You may also make a confidential report to a SJC Counselor. Please refer to San Juan College’s [Title IX](#) site for further details.

San Juan College’s Title IX Coordinator is Stacey Allen, Assistant Director of Human Resources/Equity, Diversity, and Inclusion Officer. The office is located at the Educational Services Center Building, 2nd Floor, Human Resources, Room 4243 at (505) 566-3515 or allens@sanjuancollege.edu.

7. Drop for Non-Attendance and/or Non-Participation

Class Attendance and Participation Expectation:

Face-to-Face -- Students are expected to attend and participate in class regularly. Any student

missing more than 10% of consecutive class time, (For example, in a regular 15-week class that meets twice a week, this equates to the student missing 3 consecutive classes) without consultation with the instructor may be considered as having abandoned the course.

On-line -- Students are expected to participate regularly and submit all course assignments, based on the course guide definition. A student who does not submit any assignments during a consecutive 10% of the course (1.5 weeks of a 15-week semester) without consulting the instructor, may be considered as having abandoned the course. Logging in does not meet the attendance standard.

Competency-Based Education Classes -- Students are expected to have regular and substantive interactions with their instructor and to actively work on course content. A student who has not submitted coursework, nor had substantive interactions with the instructor over a consecutive 10% of the term, without the instructor's prior approval, will be considered to have abandoned the competency progression. Last date of attendance will be recorded as the last date that coursework was submitted or that the student met with the instructor. For on-line learners, logging in does not meet the attendance standard.

Failure to Meet Class Participation Expectation:

Students who fail to meet participation expectations will have their last date of attendance recorded. This date will be used to recalculate any financial aid received/veteran's benefits received, and the student may be required to repay the institution/government. If the student does not drop the course, an 'X' grade will be recorded. An 'X' grade impacts the grade point average the same as an 'F'.

8. Grading Policies

Incomplete: Incomplete Grade Assignment ([Incomplete Grades Information](#))

The grade of I (Incomplete) is given for passing work that could not be completed during the semester because of circumstances beyond the student's control. Ordinarily, the assignment of an I is given by the course instructor at the time final grades are due.

In no case is an I grade to be used to avoid assignment of D or F grades for marginal or failing work or to require a student to enroll in the class the next semester because work was not completed on time. Circumstances warranting the issuance of an I grade must be beyond the student's control and must be documented on the appropriate form prior to approval.

I grades can be removed only during the subsequent 16 weeks from the end of term, or within the time limit set by the instructor. Removal of an I is accomplished by completing the work in a

manner acceptable to the instructor. Re-enrollment in the course under the repeat option does not remove the prior grade of I. Students should not re-enroll for the course. An I not made up within 16 weeks or within the time limit set by the instructor will change to an F grade thereafter and cannot be changed by work completion.

9. Grade Appeals

The policy for grade appeals is in the Academic Catalog ([Grade Appeal Policy](#)).

Student Handbook

The Student Handbook provides information on Student support, student organizations, and San Juan College policies.

[Student Handbook](#)

Online Course Fee

Online Courses - San Juan College requires all online courses to include some form of assessment to demonstrate the mastery of course objectives. This could include exams, capstone projects, e-portfolios, presentations, final papers or other appropriate assessments. The use of a proctoring platform, plagiarism detection software or other method to ensure that assessments are completed by the enrolled student is required.

A course fee of \$5.00 is assessed for all online courses at San Juan College to cover the cost of the above services. Students who are required to take a proctored exam and choose to use a physical testing center outside the SJC Testing Center or SJC Disability Services will be responsible for the cost of using that center.